School Finance Redesign Project

center on reinventing public education

PAYING FOR SCHOOL FINANCE ADEQUACY WITH THE NATIONAL AVERAGE EXPENDITURE PER PUPIL

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The School Finance Redesign Project

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Introduction

Debates rage across the country about multiple issues related to school finance. The historical issue has been the inequities related to wide variations in expenditures per pupil across districts, both within and across states (Odden and Picus, forthcoming). Another issue has been whether money matters, whether higher spending districts provide their students an educational advantage with those greater resources or, conversely, whether lower spending districts shortchange the educational opportunities of their students (Hanushek 2006). As both state standards-based education reform and the federal No Child Left Behind Act (NCLB) require high levels of student performance from the public schools, the issue of whether the schools have sufficient resources to meet those performance demands has assumed new importance, with many educators claiming that the federal government should "fully fund" NCLB and that states should hike school funding if districts are to have the resources to meet the mandated performance challenges. Finally, the shift of school finance from equity to adequacy (Minorini and Sugarman 1999) joins all these issues. School finance adequacy requires states to provide each district and school an "adequate" level of resources that would allow them to deploy educational programs and strategies that provide all students an equal educational opportunity to achieve to the performance standards.

Although school finance adequacy is conceptually straightforward,[1] several different approaches to identifying fiscal adequacy have been developed (see Guthrie and Rothstein 1999; Odden 2003; Odden and Picus, forthcoming) and there is emerging debate–quite strong debate in many cases–about whether any of those approaches reflect good science (Hanushek 2006). The alternative methods usually provide different adequate expenditure figures, and those results can vary substantially depending on the method used. Despite this debate, states and districts are moving forward on the adequacy agenda as many states are under a court mandate to provide adequate school funding, and nearly all pending school finance suits raise the adequacy argument (Odden and Picus, forthcoming).

This paper seeks to move the adequacy issue forward by demonstrating that the national average expenditure per pupil comes very close to funding adequacy. We do this by showing what can be purchased with the national average expenditure per pupil if it were to be applied to one adequacy method–the evidence-based approach–and how these resources have been linked to increases in student performance. The paper has five sections. The first section reviews the four approaches to adequacy. The second section discusses in more detail the programs and strategies recommended by the evidence-based approach and summarizes research on schools that have doubled student performance with the types of educational strategies and programs that are recommended by the evidence-based model. Section three identifies the methods used to cost-out the core recommendations from the evidence-based model. Section four presents the results, and compares them to the national average expenditure per pupil for the 2005-2006 school year. The final section provides conclusions and discussion and suggests research for the future. To foreshadow the findings, the analysis shows that using national average student

[1] The broad definition of adequacy is providing a level of resources that is sufficient for districts and schools to produce specified student performance results.

demographics and educator salary and benefit data, the cost of the evidence-based model is covered, or nearly covered, by the current national average expenditure per pupil.

Approaches to School Finance Adequacy

Over the last decade, states have moved from a focus on school finance equity to that of adequacy, as courts and legislatures interpret the education clauses of state constitutions to require that the school finance system provide each district, school, and student an "adequate" level of resources. Adequate is generally defined as a level of funding that would allow each district and school to deploy a range of educational programs and strategies that would provide each student an equal opportunity to meet the state's education performance standards. To identify what that level of fiscal resources is, states, as well as non-profit organizations and coalitions of school districts suing states to insure adequate funding, have contracted with school finance experts to determine what an adequate education system would cost.

Four major methods exist to determine school finance adequacy, each with their own advantages and limitations: cost function (Duncombe, Ruggiero, and Yinger 1996; Imazeki and Reschovsky 2005; Reschovsky and Imazeki 1998, 2000, 2001); professional judgment (Augenblick, Myers, Silverstein, and Barkis 2002; Guthrie, et al. 1997), successful schools/districts (Augenblick 2001; Augenblick, Myers, Silverstein, and Barkis 2002; Fermanich, Mangan, Odden, Picus, Gross, and Rudo 2006; Dupree, Augenblick, and Silverstein 2006), and evidence-based (see cites below). Reviews of these approaches have been prepared by Baker, Taylor, and Vedlitz (2004), Guthrie and Rothstein (1999), and Odden (2003).

The successful district and cost function approaches provide an estimate of the adequate expenditure per pupil level (and adjustments for various pupil needs) but do not suggest how those dollars should be used. By contrast, the professional judgment and the evidence-based approaches specify in some detail a set of programs and strategies for prototypical elementary, middle, and high schools, as well as configurations of the central office, operations and maintenance, and transportation functions, arguing that the recommendations reflect adequate resources. The professional judgment approach uses the professional knowledge of panels of educators to identify the recommended programs and strategies, while the evidence-based approach uses evidence from research and best practices to frame its recommendations. Although the evidence-based approach starts with a set of core recommendations, it also employs teams of state policymakers as well as education leaders and practitioners to review the recommendations and modify and tailor them to the unique conditions, cultures, desires, and requirements of the particular state. The final set of strategies and their resource needs are the basis of the cost estimates derived for schools and districts in the state.

Evidence Based Approach Strategies

The evidence-based approach to school finance adequacy has been used in Kentucky (Odden, Fermanich, and Picus 2003), Arkansas (Odden, Picus, and Fermanich 2003; Odden, Picus, and Goetz 2006), Arizona (Odden, Picus, Fermanich, and Goetz 2004), Wyoming (Odden, Picus, Goetz, Fermanich, Seder, Glenn, and Nelli 2005), Washington (Odden, Picus, Goetz, Fermanich, and Mangan 2006), and Wisconsin (Odden, Picus, Archibald, Goetz, Mangan, and Aportela 2007), with varying levels of expenditures necessary to bring these states to the funding levels

estimated to be adequate. The recommendations from the evidence-based approach have been used by the Arkansas and Wyoming legislatures to restructure their states' school finance structures.

The basic approach of evidence-based studies is to identify school-based programs and educational strategies that research has shown to improve student learning. Although the rigor of the evidence supporting the effectiveness for each recommendation varies, this approach only includes recommendations that are supported by either solid research evidence or best practices. While the degree of effectiveness of any individual recommended program can be debated, as can the sum total of all the recommendations, the evidence-based approach includes many strategies that both education researchers and practitioners argue should be part of any high performance school (see, for example, Stringfield, Ross, and Smith 1996).

The evidence-based model includes the following [see the above referenced evidence-based studies as well as Chapter 4 of Odden and Picus (forthcoming) for the evidence supporting each of these recommendations]:

1. Full-day kindergarten.
2. Core class sizes of 15 for grades K-3 and class sizes of 25 for all other grades 4-12. Core is defined as the regular classroom teacher in elementary school and teachers of mathematics, science, reading/English/writing, history, and world language in secondary schools. With these ratios, class sizes average 18 in the elementary school and 25 in middle and high schools.
3. Specialist teachers to provide instruction in art, music, physical education, career technical education, etc., and in numbers adequate to cover a six period day in middle schools, with teachers teaching for just five periods, and 90 minute block schedules in high schools.
4. At least one period (usually an hour) of planning and preparation time each day for all teachers in elementary, middle, and high schools.
5. Pupil support staff including guidance counselors (one full time equivalent–FTE–position for every 250 students in middle and high schools) and nurses, as well as additional pupil support to include social workers and family liaison personnel, the latter provided on the basis of one FTE position for every 100 at-risk students.[2]
6. A full time librarian and principal in every prototypical school, as well as two secretarial positions in the prototypical elementary (432 students) and middle school (450 students), and three secretaries in the prototypical high school (600 students), an additional library media technical person, and sometimes an additional assistant principal in the prototypical high school.
7. An ambitious set of professional development resources including one instructional coach for every 200 students (three FTE positions in a 600 student high school), at least ten pupil free days for professional development which

[2] At-risk students are generally the number of students eligible for the federal free and reduced price lunch program, often with adjustments for high school students where lunch eligibility is typically under-reported.

usually means extending the school year for teachers by five additional days, and $100/pupil for trainers and other expenses related to professional development.

8. Supervisory aides to cover recess, lunch, hall monitoring, and bus loading and unloading.
9. About $180 per pupil for instructional materials, formative assessments, and supplies; $250 per pupil for technology and equipment; and $250 per pupil for student activities (sports, clubs, etc.).
10. $25 per pupil to provide extra strategies for gifted and talented students.
11. A comprehensive range of "extra help" strategies for students who need additional instructional assistance and extra time to achieve to rigorous state proficiency standards including:
    - Resources to provide one-to-one tutoring at the ratio of one FTE teacher tutor position for every 100 at-risk students.
    - Extended-day resources to provide an eight to nine week summer program, up to six hours per day, with academic help, at the ratio of one FTE position for every 30 at-risk students, assuming about 50 percent of at-risk students would participate.
    - Summer school resources to provide up to a six hour a day, and eight to nine week summer program and academic help for two-thirds of the time, at the ratio of one FTE position for every 30 at-risk students, assuming about 50 percent of at-risk students would need such extra help and would attend the program.
    - An additional one FTE teacher position for every 100 English language learning (ELL) students (the bulk of whom also are at-risk and trigger the first three extra help resources) primarily to provide instruction in English as a second language.
    - One teacher FTE for every 150 students to provide services for high-incidence but lower-cost students with disabilities (three positions at the prototypical elementary and middle schools and four positions at the prototypical high schools), with an additional half-time aide per full-time special education staff member. The model also advocates full state funding of the entire costs of the high-cost special need students (assuming two percent of those with disabilities are in the "high-cost" category).
12. Substitute teacher resources at 10 days for each teacher and instructional facilitator position.
13. Central office staff covering the superintendent's office, the business office, curriculum and pupil support, technology personnel, and an operations and maintenance director (configured on a prototypical 3,500 student district and then prorated up or down depending on district pupil size).
14. Food services are assumed to be a self-supporting enterprise activity; where such services operate at a loss, the model recommends out-sourcing the function to a private sector company whose core business is food services, such as ARA Services.

To show what all these core recommendations mean in terms of staff positions and dollars, the recommendations are often displayed as applied to prototypical elementary, middle, and high schools (see Table 1). However, in actual use, the core recommendations are "fit" to the student numbers and student demographics of each school in a state, so schools with more students than shown in the prototypical schools would have proportionately more resources, and schools with fewer students would receive fewer resources, though several core resources–principal, secretary, librarian–often are retained for smaller schools to address diseconomies of small school size. Further, schools with larger concentrations and numbers of at-risk students would be eligible for a greater level of resources triggered by those higher pupil counts.

To determine the costs of an adequate education, salary and benefit figures need to be attached to the various staff positions. This process often entails analyses of what would constitute an "adequate" teacher salary and "adequate" benefit package (see, for example, Imazeki 2006). After estimating the costs of all the school-based resources, those costs are aggregated to the district level, at which point central office and other district resources are added, and then all district resources are summed to determine a state level total cost figure.

The costs of adequacy vary from state to state mainly due to personnel costs, specifically the number of FTE in the final recommendations and the salary and benefit levels for each of the recommended positions. Determining the number of staff positions and compensation levels are contextually specific policy and political decisions in each state. The policy choices with the largest fiscal impact include the salary and benefit levels identified as "adequate" and the number of FTE positions needed for the class size, instructional facilitator/coaches, certified teacher-tutors for struggling students, summer school, and extended day programs.

Doubling Performance

In the evidence-based model, the research evidence behind each recommendation varies in strength. Variance exists due to the paucity of high-quality studies and the small number of randomized, controlled studies that exist in educational research. Further, some strategies have widely varying results in terms of effect sizes, possibly due to implementation issues, possibly due to the focus of the intervention (e.g., whether a summer school program had an academic emphasis or not), or caused by any number of other issues. Further, because the evidence-based approach to school funding adequacy relies on the research that currently exists, alternative and lower-cost strategies may emerge in the future. Nevertheless, we would argue that the strategies included in the core evidence-based recommendations listed above are those widely suggested by practitioners and researchers as strategies that "work," (i.e., boost student achievement). Further, the resources included in the evidence-based model will adequately resource all the "boxes" of resources in the Framework for Linking Resources to Student Learning (Adams and Hommer, forthcoming), the resources identified as necessary for learner centered classrooms by Sharp and Bransford (2007), and the resources identified by Weiss (2007) to support the cycle of continuous instructional improvement. Nevertheless, there is continuing debate over whether the above strategies are effective in dramatically improving student academic achievement.

Table 1. Recommendations for Adequate Resources for Prototypical Elementary, Middle, and High Schools

School Element	Elementary Schools	Middle Schools	High Schools
School Characteristics			
School configuration	K-5	6-8	9-12
Prototypical school size	432	450	600
Class size	K-3: 15 4-5: 25	6-8: 25	9-12: 25
Full-day kindergarten	Yes	NA	NA
Number of teacher work days	190 teacher work days, so an increase of 5 days	190 teacher work days, so an increase of 5 days	190 teacher work days, so an increase of 5 days
Percent of students with disabilities	13.7%	13.7%	13.7%
Percent poverty (free and reduced price lunch)	36.3%	36.3%	36.3%
Percent ELL	10.6%	10.6%	10.6%
Personnel Resources			
1. Core teachers	24	18	24
2. Specialist teachers	20% more assuming a 6 period day with each FTE teaching 5 periods: 4.8	20% more assuming a 6 period day with each FTE teaching 5 periods: 3.6	33% more assuming a 90 minute block schedule with each FTE teaching 3 blocks a day: 8.0
3. Instructional facilitators/coaches	1/200 students: 2.2	1/200 students: 2.25	1/200 students: 3.0
4. Tutors for struggling students	1/100 poverty students: 1.57	1/100 poverty students: 1.63	1/100 poverty students: 2.18
5. Teachers for ELL students	An additional 1 teacher/100 ELL students: 0.46	An additional 1 teacher/100 ELL students: 0.48	An additional 1 teacher/100 ELL students: 0.64
6. Extended day	1.31	1.36	1.74
7. Summer school	1.31	1.36	1.74
8. Students with mild disabilities	Additional 3 professional teacher positions and 0.5 aides for each special education teacher	Additional 3 professional teacher positions and 0.5 aides for each special education teacher	Additional 4 professional teacher positions and 0.5 aides for each special education teacher

Table 1 *(cont'd)*. Recommendations for Adequate Resources for Prototypical Elementary, Middle, and High Schools

School Element	Elementary Schools	Middle Schools	High Schools
9. Students with severe disabilities	100% state reimbursement minus federal funds	100% state reimbursement minus federal funds	100% state reimbursement minus federal funds
10. Resources for gifted/talented students	$25/student	$25/student	$25/student
11. Substitutes	10 days/FTE	10 days/FTE	10 days/FTE
12. Pupil support staff	1/100 poverty students: 1.32	1/100 poverty students plus 1 guidance/250 students: 3.18 total	1/100 poverty students plus 1 guidance/250 students: 4.25 total
13. Supervisory aides	2	2	3
14. Librarians/media specialists	1	1	1 librarian 1 library technician
15. Principal	1	1	1
16. School site secretary	1 secretary and 1 clerical	1 secretary and 1 clerical	1 secretary and 3 clerical
Dollar per Pupil Resources			
17. Professional development	Included above: Instructional facilitators 10 summer days Additional: $100/pupil for other PD expenses– trainers, conferences, travel, etc.	Included above: Instructional facilitators 10 summer days Additional: $100/pupil for other PD expenses– trainers, conferences, travel, etc.	Included above: Instructional facilitators 10 summer days Additional: $100/pupil for other PD expenses– trainers, conferences, travel, etc.
18. Technology and equipment	$250/pupil	$250/pupil	$250/pupil
19. Instructional materials, including textbooks, formative assessments	$165/pupil	$165/pupil	$200/pupil
20. Student activities	$250/pupil	$250/pupil	$250/pupil
Other Expenditures			
22. Operations and maintenance	$890/pupil	$890/pupil	$890/pupil
23. Transportation	$375/pupil	$375/pupil	$375/pupil
24. Food services	Self supporting	Self supporting	Self supporting

To add to the evidence on the efficacy of these strategies, particularly the impact of the combined strategies in schools, we and others have conducted case studies of several schools and districts around the country that have doubled student performance as measured by state tests over a four to seven year time period (see, for example, Odden, Picus, Goetz, Fermanich, and Mangan 2006; Odden, Picus, Archibald, Goetz, Mangan, and Aportela 2007). The cases include schools and districts in rural, suburban, and urban communities and small, medium, and large schools. The cases show that the schools follow a series of remarkably similar steps to doubling performance. These steps track closely to similar findings and research on approaches to dramatically improve organizational performance in the private sector (Kotter 1996, 2002) and in education (Duke 2006; Fullan 2002). Further, these educational case studies show that the schools used the kinds of resources described in the evidence-based model to deploy their comprehensive set of strategies that produced the improved student performance.

Such common strategies and resource deployments include:

- Small class sizes (with a goal of 15) in grades K-3
- Extensive teacher professional development including more days of training and the placement of instructional coaches in schools
- Extensive use of formative assessments to help tailor and focus instruction to the precise learning status of each teacher's students
- Deployment of a series of extra help strategies that usually include some combination of one-to-one tutoring, extended day, and academic-oriented summer school programs
- Creation of a collaborative, professional school culture

Much more research is needed, both on the individual strategies themselves, various combinations of those strategies, and schools and districts that have been successful in dramatically improving student performance as measured by external instruments. However, the evidence that is in place, together with the growing number of schools and districts that have used the resources in the evidence-based model to significantly boost student learning, combined with policymaker and practitioner support for these evidence-based strategies, is sufficient to argue that if provided and used well, the evidence-based strategies should produce dramatic improvements in student performance. As more evidence and information is created, these strategies and their underlying resources could be recalibrated, but they provide a substantive and reasonable basis for moving forward today.

Of course, the key question in any state and for the country is how much do these strategies cost? In many places where we have worked, educators and policymakers have strongly supported all the recommendations and predicted that the costs would be prohibitively high, as much as $15,000 per pupil. As we show below, the costs are considerably lower than that.

Methodology for Costing-Out the Evidence-Based Model

In order to determine the national average cost of an evidence-based approach to school finance adequacy, we used a prototypical district consisting of four 432-student elementary schools, two 432-student middle schools, and two 576-student high schools, for a total of 3,744

students, with about 108 students in each grade.[3] This district contains the national average percentages of free and reduced priced lunch students, English Language Learners (National Center for Education Statistics 2006), and special education students (Hoffman and Sable 2006). The staff members in each of these schools were determined by using the recommendations from the evidence-based model applied to the numbers and demographics of these prototypical schools and are itemized in Table 1.[4] Applying national average salary data as well as a defined group of benefits (see Table 2) to the personnel resources of the prototypical elementary, middle, and high schools and then adding the school-based dollar per pupil resources (instructional materials, technology, professional development, etc.) produced a cost for general education resources at the school level of $5,847 per pupil.

Each school then was allocated resources for extra help strategies. Students eligible for free and reduced price lunch trigger resources for tutors, extended day and summer school programs, and additional pupil support staff, all with appropriate substitute teacher days. ELL students trigger resources for ELL teachers and their substitute days. And, special education students trigger teacher and aide resources using a census approach as well as resources for high-cost special education students (i.e., students who need services above and beyond the staffing provided via the census approach to special education funding). The cost for these latter students with disabilities, who are estimated at two percent of the total number of students with disabilities, was estimated from an analysis in Wisconsin; this analysis, reconfigured to national special education percentages, estimates that fully funding all high-cost students, would require about $137 per regular student.[5] These extra help strategy resources, triggered by the above pupil characteristics, total $1,601 over regular pupil resources (including $2,382 per free and reduced price lunch student, $653 per ELL student, $3,893 per low-cost, high-incidence special education student, and $50,000 per high-cost, low-incidence special education student).

[3] The prototypical district could be of any number of students or schools; it is used merely to produce an average per pupil cost for the various recommendations. Once that per pupil figure is reached, it could be used as the expenditure per pupil figure in a foundation program, which then would provide greater total dollars to larger districts and lesser total dollars to smaller districts; actual dollars would depend on the exact numbers of students in the district. Further, districts with higher numbers of ELL or students eligible for free and reduced price lunch would also be eligible for larger numbers of dollars.

[4] Note, although several evidence-based studies included minimum staff to deal with the increased cost of small schools and districts, this per-pupil figure is a simple proration, up and down, of the costs of the model. In analyses of the statewide difference in per-pupil costs between models that include minimum staff positions and those that use simple proration, minimal cost differences exist.

[5] This estimate is based on a high cost student with disabilities requiring $50,000 above regular pupil costs. For every 1,000 students, assuming 13.7 percent have disabilities and assuming that 2 percent of those students are high cost; that produces 2.74 high cost students. The total cost for these students would be 2.74 times $50,000, or $137,000 or $137 per regular student and $50,000 per high cost special education student.

Table 2. Salary and Benefit Rates

Position	Salary	Benefits	Total Compensation
School-Based			
Principal	$80,411	$20,986	$101,397
Teacher	$46,953	$15,583	$62,536
Librarian	$52,505	$16,480	$68,985
Media Tech	$37,562	$14,066	$51,629
Counselors	$51,862	$16,376	$68,238
School Secretary	$24,887	$12,019	$36,906
School Clerical	$19,910	$11,215	$31,125
Supervisory Aide	$15,915	$10,570	$26,485
Central Office			
Superintendent	$116,244	$26,773	$143,017
Asst. Superintendent	$99,771	$24,113	$123,884
Business Manager	$78,154	$20,622	$98,776
Staff-Personnel Services	$80,568	$21,012	$101,580
Technology	$66,832	$18,793	$85,625
Other Areas	$68,229	$19,019	$87,248
Secretary	$33,077	$13,342	$46,419
Accounting/Payroll Clerks	$34,829	$13,625	$48,454

Salary information obtained from Education Research Service, National Survey of Salaries and Wages in Public Schools, 2005-2006. Costs for instructional facilitators, coaches, psychologists, and occupational therapists/physical therapists are estimated using "other professional staff" salaries. Principal salaries are based on an unweighted average of elementary, junior high/middle, and high school principal salaries. Media technician salary is 80% of teacher salary and school clerical salary is 80% of secretary salary. Supervisory aide salary is based on a 7.5 hour work day for 185 school days. Benefits are 7.65% FICA/Social Security, 1% Unemployment Compensation, $8,000 health, and 7.5% retirement.

Next, we added district level resources to the school level costs. These resources include central office, maintenance and operations, and transportation costs. Table 3 includes a central office staffing strategy for a school district of 3,500 students (Odden, Picus, Archibald, Goetz, Mangan, and Aportela 2007). These central office resources total $678 per-pupil and would provide slightly more total dollars to our prototypical 3,744 student district than for the 3,500 model in Table 3. An additional $890 per-pupil for maintenance and operations costs and $375 per-pupil for transportation, which represent the average percentage of 9.5 percent for maintenance and operations and 4.4 percent for transportation (DOE 2006), bring total district level resources to $1,943 per pupil. Similar expenditures for operations and maintenance can be determined by applying a set of standards for those functions (see Odden, Picus, Goetz, Fermanich, and Mangan 2006).

Table 3. Composition of a Central District Office for a District with 3,500 Students

Superintendent's Office 1 Superintendent 1 Assistant Superintendent 2 Secretaries
Curriculum and Support Office 1 Director of Pupil Services 1 Director of Special Education 1 Psychologist 3 Secretaries
Business Office 1 Business Manager 1 Human Resources Manager 1 Secretary 1 Payroll Clerk 1 Accounts Payable Clerk
Technology Office 1 Director of Technology
Operations and Maintenance Office 1 Director of Maintenance/Operations 1 Secretary

Results

Table 4 shows the final results. General education resources for the schools totaled $5,847. The resources for all the extra help strategies–tutors, extended day, summer school, ELL students, students with all categories and degrees of disabilities–totaled another $1,601 per pupil. And then district office resources were added, including central office, operations and maintenance, and transportation services; these functions added an additional $1,943 per pupil, for a total of $9,391 per pupil.

Table 4. Per-Pupil Resource Needs for Evidence-Based School Funding Approach in a Prototypical District of 3,744 Students

General Education Resources	Personnel	Total Cost	Per-Pupil Cost
Teachers	180.5	$11,286,481	$3,015
Specialist Teachers	42.1	$2,631,911	$703
Instructional Facilitators	18.7	$1,170,672	$313
Counselors	8.1	$550,269	$147
Librarians	7.8	$540,839	$144
Principal	8.0	$811,176	$217
School Secretary	7.8	$289,345	$77
School Clerical	11.7	$363,540	$97
Non-instructional Aides	17.6	$466,133	$125
Media Specialists	1.9	$99,127	$26
Gifted		$93,600	$25
Substitute Teachers		$259,745	$69
Additional PD days		$423,254	$113
PD funds		$374,400	$100
Technology		$936,000	$250
Instructional Materials		$658,080	$176
Student Activities		$936,000	$250
Subtotal		*$21,890,572*	*$5,847*
Special Needs Resources			
Low-Income Resources	49.8	$3,237,353	$865
ELL Resources	4.0	$248,183	$66
Special Education Teachers (census)/Aides	38.2	$1,997,053	$533
High-Cost Spec. Education Resources		$512,928	$137
Subtotal		*$5,995,516*	*$1,601*
District Resources			
Central Office	19.3	$2,539,196	$678
Maintenance and Operations		$3,332,160	$890
Transportation		$1,404,000	$375
Subtotal		*$7,275,356*	*$1,943*
Total Evidence-Based Approach Cost:		*$35,161,444*	*$9,391*

Note: Low-income, ELL, and special education teacher (census) resources include funding for substitute teachers to cover sick days for full-time staff as well as an additional 5 days for staff professional development. Personnel are displayed to the tenths place, though actual decimal places are used in calculations.

We know that this cost figure would be different in each of the 50 states, both because of the different demographics of each state and because each state provides a different average salary level and benefit package. We also know that states would make decisions that would vary from the core evidence-based decisions that are represented in Table 1. Nevertheless, we are confident that this figure is a good estimate of what the combined evidence-based recommendations, which include some of the most desired and highest-cost educational strategies, would cost on a national average basis. And we are confident that if such resources were provided on average to each district and school, price adjusted to insure parity of the purchasing power of the education dollar across states and districts (see Taylor and Fowler 2006), that schools would have a sufficient set of resources that would allow them to deploy a series of strategies that would allow them to produce substantial improvements in student academic achievement, which is the ultimate objective of the education system and of school finance adequacy. Of course, the key question is how close is the evidence-based number to the national average?

The final dollar per pupil figure from all the recommendations in the evidence-based model, using national average student poverty, disabilities and ELL rates, and national average data on the cost of personnel, is $9,391. We now compare that number to various estimates of national average expenditures per pupil in 2005-2006. In January 2007, the federal government had not yet provided an estimate of per pupil expenditures for the 2005-2006 school year, so we turned to the most recent estimate, which was published by the National Education Association (NEA) in December of 2006. NEA estimated that 2005-2006 expenditures per pupil for public schools, including all sources of revenues and all operating functions, were $9,576 per average daily attendance (ADA) and $9,022 per enrolled pupil (NEA 2006). These expenditures were derived roughly from 44 percent local, 49 percent state, and 7 percent federal revenue sources. Applying national average salaries (see Table 3) to the evidence-based model, the cost of the model averages $9,391 per-pupil in 2005-06, which includes full funding for low-incidence, high-cost special education students at the rate of $137 per student (see Table 4). The NEA estimates include roughly $375 in food services expenditures, which the evidence-based estimate assumes self-sufficient, and subtracting this $375 from national ADA and enrollment estimates brings these national figures to $9,201 and $8,647, respectively.

This analysis suggests that the average adequate level of funding for the nation based on the evidence-based approach to school adequacy is 8.6 percent above the average per-pupil expenditure in 2005-2006 using an enrollment count of pupils and 2.1 percent above the national average expenditure per pupil using an ADA figure, suggesting that the national average expenditure per pupil is very close to providing school finance adequacy–on a national average basis.

Discussion, Conclusions, and Future Research

The central finding from our analysis is that overall and on average our nation is very close to providing adequate school funding using the core recommendations from the evidence-based approach to school finance adequacy. In a very real sense, that is good and probably unexpected news. We expect that without the benefit of this analysis, most educators and policymakers would predict the nation is far from adequately funding its schools. We demonstrate above that such a pessimistic conclusion is not warranted.

At the same time, there is no state that looks exactly like the national average. Some states spend considerably above our estimate, and some considerably below. Even those that spend close to the calculated figure might not be adequately funding their public school systems either because they have a higher concentration of poverty and other students who need extra help or provide salaries that are too low to recruit and retain high-quality teachers. So without specifically applying the core recommendations of the evidence-based approach to each state, it would be inappropriate to say that our fiscal findings apply to any specific state.

However, the conclusion should cause the country to pause for a moment and consider the way it funds public school systems in the 50 states. If on average the overall funding is adequate, or nearly adequate, does it make sense that some states might be funding at a level above–sometimes far above–adequacy and others at a level below–sometimes far below–adequacy? And if our finding that the country as a whole is close to adequately funding its public schools is on the mark, what does that suggest for a federal role in school financing? To what degree does it make sense to try to iron-out the funding inequities across states so that extant resources could be deployed in ways that bring most students in most schools to adequate funding levels, and what would those strategies be?

There are other complex issues to consider. Even districts and schools that are adequately funded may not use their resources in ways that produce the desired and possible levels of student performance. What are the strategies for creating a sense of urgency to change in these schools? How can we encourage them to rethink their curriculum, instruction, classroom, and school organizational strategies and create a more powerful school vision? How can we help them restructure with that vision and in the process reallocate their resources to meet a more effective and productive vision of student learning? If those processes were known, what are the strategies to scale-up and fund all districts and schools so they can restructure themselves into educational organizations that produce higher levels of student achievement? Put differently, adequate funding would be but one step in a series of steps required for schools to recreate themselves into the kinds of high-performance organizations envisioned by the Framework for Linking Resources to Student Learning (Adams and Hommer, forthcoming).

One approach to some of these implementation issues would be to focus on states that already provide adequate funding for their schools and to create multiple strategies to create a sense of urgency so the state's schools redesign and restructure themselves into more effective organizations – and then to study these efforts so that a knowledge base is created for how to establish incentives for schools to use resources in the most effective and productive ways.

The lessons learned could be used in other states that need to increase school funding to a level that is adequate, or at least adequate using the resource standards of the evidence-based model. The evidence-based model provides them with sufficient resources to dramatically improve student academic achievement, if not up to the levels finally desired, at least to higher levels from current status.

Simultaneously, the federal government could work with multiple states to launch an ambitious research agenda to bolster the evidence under girding the strategies included in the evidence-based model as well as other strategies that are effective in boosting student learning.

Such a research agenda should include the following:

- Use of other adequacy methods to determine how national school funding tracks with estimates of adequate funding using those models.
- Randomized experimentation using different class sizes to provide more evidence on what class sizes produce the highest levels of achievement in elementary, middle, and high schools, and to determine if different class sizes are needed for different core subjects–mathematics, science, history, reading, and writing. Since class size is a prime determinate of school costs, these studies are critical to estimating the costs of adequately funding schools.
- More analysis of what constitutes "adequate" teacher salary levels. This is important if we are to determine whether teacher salary increases could by themselves enhance the effectiveness of teachers by allowing the education system to recruit and retain a larger number of high-quality teachers. This research would also help us determine the salary premiums that are needed to recruit and retain quality teachers in hard to staff positions such as mathematics and science, in urban, high-poverty and low-performing schools. Since teacher salary level is the second major determinate of school costs, these studies are also critical to establishing a more accurate estimate of adequate school funding.
- More randomized trials of each specific strategies and combinations of strategies (e.g., class sizes of 15 in just grades K-1 or other grade spans, small class sizes combined with one-on-one tutoring, etc.).
- More case studies of schools dramatically improving student achievement, identification of the strategies used to do so, and delineation of the resources and funding needed for those strategies.
- More studies of the comprehensive use of computer technologies to impact student achievement and reduce the personnel needs of schools and districts.

Undoubtedly, the research agenda could be even more ambitious. But this list would significantly add to our knowledge of what works and how best to create a more effective as well as more efficient school organization that can produce the levels of student achievement that the country needs both to remain competitive in the emerging global economy and for each individual student to be successful in his or her adult life.

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